REMARKS

The Examiner is thanked for the due consideration given the application.

Upon entry of this amendment claims 12, 17, 19-22, 24, and 26-33 are pending in the application. The independent claims have been amended to replace "comprising" with "consisting essentially of" transitional language and, since the scope of the term "consisting essentially of" is encompassed by "comprising", no new issues are raised. By this amendment claims 15, 18, 23 and 25 are canceled so as to complement the current transitional language.

No new matter is believed to be added to the application by this amendment.

Entry of this amendment under 37 CFR §1.116 is respectfully requested because it cancels claims and raises no new issues.

Rejections Based on HIROTA et al.

Claims 12, 15, 17-21 and 22-23 have been rejected under 35 USC §103(a) as being unpatentable over HIROTA et al. (U.S. Patent 6,627,053) in view of MIDDLEBY (U.S. Patent 5,228,964). This rejection is respectfully traversed.

The present invention pertains to an electrolytic device for disinfecting water in a water supply system by generation of active chlorine, which is exemplarily illustrated in Figure 1 of the application, reproduced below.

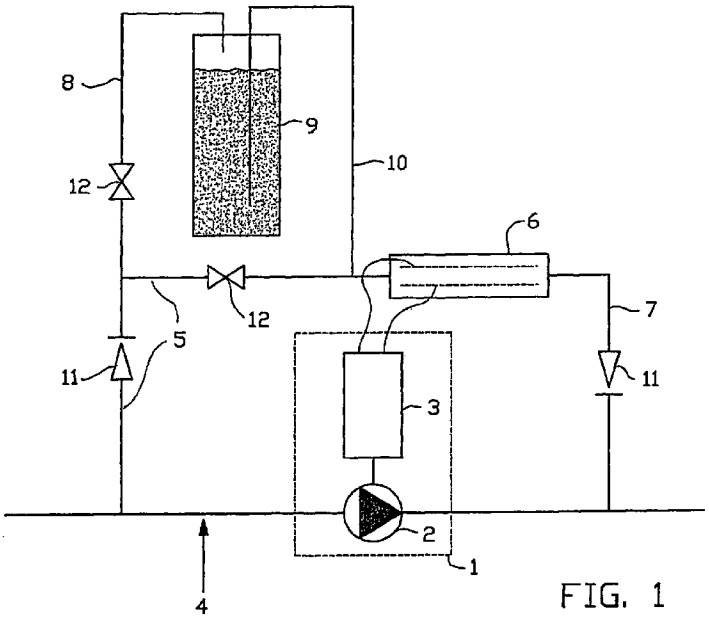


FIG. 1

Figure 1 shows a generator 1, and electrolytic cell 6 and a salt dosing device 9, non-return valves 11 and constrictions 12.

In the electrolytic device of the present invention, the electric power generated by a generator driven by the water flow in a water supply system is used to treat water containing chloride ions in an electrolytic cell to generate active chlorine for disinfecting the water in the water supply system. According to the present invention, the feeding for the electrolytic cell is branched off from the water supply system at a location upstream of the blade wheel of the generator so that the pressure drop over the generator is used for controlling the feed. By passing the feed at least partly through a salt dosing device, chloride ions are incorporated in the feed before it enters the electrolytic cell.

As the generator is driven by the water in the water supply system, the amount of energy provided to the electrolytic cell and consequently the amount of active chlorine produced are proportional to the amount of water in the water supply system. The feeding to the electrolytic cell is also proportional to the amount of water flowing through the water supply system. By using the pressure drop and some simple orifices/valves, the feed can be regulated such that it takes up the appropriate amount of salt to generate a sufficient amount of active chlorine.

The present invention thus results in a compact, self-supporting system, for example, a system that has been taken into production has a housing having dimensions of 12x15x5 cm and a salt vessel having a diameter of 25 cm and a height of 10 cm, and contains enough salt to disinfect 30,000 liters of water. It delivers active chlorine dosage of about 0.3 to 0.4 mg/L at 2-15 L/h, which satisfies many international guidelines for the purification of drinking water. Overdosing of active chlorine is impossible because the quantity of active chlorine produced is directly related to the quantity of flowing water. The device functions completely independent from external energy sources and regulation.

Now consider HIROTA et al. in view of MIDDLEBY.

Contrary to what the Official Action asserts, it is submitted that the skilled person would not contemplate to

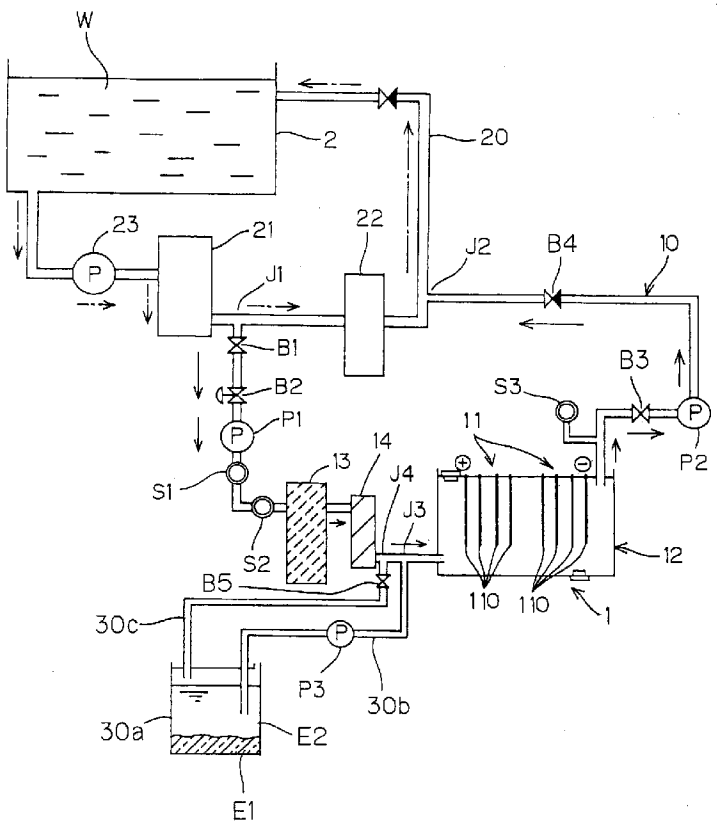
incorporate the generator of MIDDLEBY in the water treatment device of HIROTA et al.

MIDDLEBY teaches a chlorinating apparatus for use in a salt-water swimming pool having a pump for circulating water between the pool and a filter comprising electrical generating means driven by the flow of water produced by the pump, and electrode means connected with the electrical generating means for generating chlorine from the salt water.

In the chlorinating apparatus of MIDDLEBY the water flow passing the impeller of the generator also passes the electrodes. No flow is branched of from the flow passing the filter to be passed through a separate electrolytic cell using the pressure drop over the impeller.

HIROTA et al. pertain to a water treatment device comprising an electrolytic tank to put water in, an electrode provided in the electrolytic tank, a water treating path for pouring water in a pool and returning to the pool the water in the electrolytic tank, a residual chlorine sensor for measuring the residual chlorine concentration of water, and control means for controlling the energization of the electrode on the basis of the measured value by the residual chlorine sensor. This can be observed in Figure 1 of HIROTA et al., which is reproduced below.

FIG. 1



The Official Action argues that with the exception of the generator, HIROTA et al. disclose all the features of applicant's claim. However, to arrive at the applicant's electrolytic device the skilled person would not only have to incorporate a generator in the water treatment device of HIROTA et al. but also incorporate it such that the pressure drop over the generator is used to control the flow to the salt dosing device and electrolytic cell.

First, the skilled person has no incentive to use a generator driven by the flow in the system of HIROTA et al. to provide the power for the electrode(s) in the electrolytic tank.

In all the disclosed embodiments HIROTA et al. teach to use pumps to circulate the water, e.g. pump 23 in the main water circulating path 20, pumps P1 and P2 to circulate water through the electrolytic tank 12, and pump P3 to dose salt containing water from the solution tank 30a (see Figure 1 of HIROTA et al., above). A generator located in the water treatment system will cause a pressure drop which will have to be compensated by increasing the power provided to the pumps.

The skilled person has no incentive to replace the electrolytic tank of HIROTA et al. by the chlorinating apparatus of MIDDLEBY as he would not see any benefit. He has to compensate the energy it may provide by increasing the power to the pumps. He also has to provide a connection with the control means for controlling the energization of the electrode on the basis of measured value of the residual chlorine sensor, meaning that a possible advantage of a more simple construction would be lost. Even if one of ordinary skill would consider to incorporate the generator of MIDDLEBY separately from the electrodes he has to choose the location to accommodate the generator. There are many possibilities. The routineer in the art may consider to accommodate it in main circulating path 20 where he may expect that the flow will be the largest. Only by choosing a location between the branching points J1 and J2 would one arrive at the present invention. Nothing in HIROTA et al. suggests that selecting this specific location will allow utilization of the

pressure drop over the generator to control the flow to the electrolytic cell and will allow the construction of the present invention's simple, compact and effective self-adjusting water disinfecting apparatus.

Also, the present invention is further distinguished from the applied art by the absence of pumps, sensors etc., and of the need to adjust valves etc. during operation, as is indicated by the current transitional language.

One of ordinary skill in the art would thus fail to produce a claimed embodiment of the present invention from a knowledge of HIROTA et al. in light MIDDLEBY. A *prima facie* case of unpatentability has thus not been made.

This rejection is believed to be overcome, and withdrawal thereof is respectfully requested.

Conclusion

Prior art of record but not utilized is believed to be non-pertinent to the claims.

The rejections are believed to be overcome, obviated or rendered moot and no issues remain. The Examiner is accordingly respectfully requested to place the application in condition for allowance and to issue a Notice of Allowability.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 25-0120 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

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